Friday on my mind: Re-assessing the Impact of Protest Size on Government Concessions*

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Abstract

Do more protesters on the streets make governments likely to grant their demands? Several studies link protest size and government concessions. Yet existing research has limitations: many studies suffer from potential endogeneity due to potential protesters joining protests when they anticipate that concessions are likely, causal mechanisms are often unclear, and many of the most rigorous event-level studies are limited to Western democracies. We reexamine this relationship in a non-Western sample using a novel instrumental variable approach, using Fridays as an instrument for exogenous variation in protest size in predominately Muslim countries. We perform two analyses: one using the NAVCO 3.0 dataset, and the second using the Mass Mobilization in Autocracies Dataset (MMAD). In both analyses exogenous variation in protest size negatively affects the likelihood of concessions. We suggest these surprising results point to the importance of unanticipated protests that produce new information about regime stability to motivate government concessions.

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1 Introduction

Does the number of participants in a protest affect the likelihood that the government will give in to its demands? The intuitive answer, frequently invoked in popular discussions, is yes. For example, media descriptions of the 2018-2019 revolution in Sudan emphasized how the presence of "millions" on the streets was key in forcing President Omar al-Bashir to step down from power.[1] Extensive scholarly work supports the intuition that larger protests more effectively force government concessions relative to small protests (Amenta et al., 2010; Chenoweth and Stephan, 2011; DeNardo, 1985; Lohmann, 1994; Madestam et al., 2013; Tilly, 1995). Large protests may be more materially costly for the regime as more people engage in noncompliance, reducing the resources at its disposal. Large protests are also hard to repress. While dispersing a crowd of a thousand people may be manageable, dispersing a crowd of a million is nearly impossible. As East German security chief Erich Mielke said when ordered to repress the peaceful anti-Communist movement in East Germany: "We can't just beat up hundreds of thousands of people" (Whitney et al., 1989, 27). Indiscriminate repression, which may be the only repressive option available to a regime facing mass protests (Klein and Regan, 2018), risks "backfire" in which violence against unarmed civilians causes moral outrage and leads to even more people protesting (Hess and Martin, 2006; Sutton et al., 2014).

Large protests are also thought to signal broad dissatisfaction and increase the perceived costs of governance for the incumbent in the future (Leventoğlu and Metternich, 2018; Kuran, 1991; Tilly, 1978). Faced with these challenges, governments may seek to stem large protests by either immediately giving in to some protester demands, or at least promising to give in to such demands in the future. While other factors, such as the identity of protesters or their specific goals, will certainly affect the likelihood of government concessions, it seems clear that *ceteris paribus*, more protesters in the streets will lead to more concessions from opponents.

Yet there are at least three key reasons why this link may not be so straightforward. First,

[1] See BBC News "Omar al-Bashir ousted: How Sudan Got Here." https://www.bbc.com/news/world-africa-47892742

correlations between protest size and regime concessions, such as those that can be found in Chenoweth and Stephan (2011), Chenoweth and Belgioioso (2019), Klein and Regan (2018) and Butcher et al. (2018), may be complicated by endogeneity. Signals of regime weakness, indicating that concessions are forthcoming, have a well-attested positive effect on protest participation, as weakly-committed individuals bandwagon onto movements on the verge of success (Lohmann, 1993; Kuran, 1991). Thus, large protest sizes are almost certainly indicative of the widely-shared expectation of government concessions, making the observed relationship between protest size and concessions endogenous and the true relationship much more difficult to determine.

Second, existing theories bundle "disruption" and "signalling" mechanisms that have different implications for the link between protest size and government concessions (McAdam and Su, 2002). If protests create change through disruption and short-term economic costs (Klein and Regan, 2018) then social movements should work to create as much (nonviolent) disruption as possible. But if large protests generate concessions by signalling new information about the relative strength of opposition to the government, then activists should focus on building broad coalitions that signal widespread dissent.

Third, while there is an important literature on the impact of social movements and nonviolent action campaigns across a wide range of countries (see e.g. Chenoweth and Stephan, 2011; Kadivar and Caren, 2015; Kadivar, 2018; Schock, 2005), most event-level studies of the effectiveness of protest that enable us to link individual protest characteristics to outcomes have been limited to Western democracies. In particular, this literature is dominated by studies of the United States (Walgrave and Vliegenthart, 2012). Yet we have little reason to believe that the distinct protest field in the United States will translate even to other developed democracies, much less to protest movements in developing countries or repressive authoritarian regimes.

In this paper we examine these issues through a novel study of the relationship between protest size and government concessions. Our empirical strategy rests on an instrumental variable never previously used (to our knowledge) to measure exogenous variation in protest

participation: whether a protest took place on a Friday in a predominately Muslim country. We argue this instrument predicts larger protests well and isolates the effects of protest size from the anticipation of government concessions. Fridays have a special role in the social and religious lives of many practicing Muslims as the day mandated in the Qur'an for attending public prayers at mosques. This provides a "focal point" for potential dissidents to overcome collective action problems by drawing on the close-proximity social networks provided by the mosque environment (Ketchley and Barrie, 2020). Overcoming these collective action problems enables dissidents to generate higher levels of protest turnout. Fridays are also unlikely to be directly correlated with government concessions for unobservable reasons. In so far as observable protest characteristics might correlate with Friday protest, such as domination by Islamist actors or centralization in major cities, these alternate avenues can easily be controlled for. Any remaining effect of Fridays on government concessions is therefore highly likely to run through the increased mobilization facilitated by Friday prayer attendance.

We perform two separate analyses using this instrumental variable. The first uses data on protest and concessions from 14 predominately Muslim countries in the Nonviolent and Violent Campaigns and Outcomes (NAVCO), version 3.0 data (Chenoweth et al., 2018). The second combines data on protest in 34 predominately Muslim countries from the Mass Mobilization in Autocracies Dataset (MMAD) (Weidmann and Rød, 2018) with data on concessions from the Integrated Crisis Early Warning System (ICEWS) dataset (Boschee et al., 2015).

In both analyses we find that when endogeneity is accounted for through the Friday instrument, protest participation has a *negative* effect on government concessions. As more protesters join Friday protests, concessions become less likely. This is a surprising finding that runs against conventional wisdom. In the discussion section, we argue that larger protests on Fridays reflect the impact of low-information *anticipated* or *predicted* mobilization on government concessions. "Friday protests" may represent disruptive acts that carry little new information about the regime-opposition balance of power in the broader society

and may be even less informative than smaller protests on Fridays. We suggest that our results point to the importance of the *signalling* role of protests over their *disruptive* impacts, while acknowledging that our results cannot definitively separate between the two. The analysis thus suggests that large protests lead to concessions when they reveal new information about the conflict. It is not the direct costs of the protests that causes government concessions but what the protests signal about *changes* in the balance of power between the regime and opposition (Lohmann, 1994; Rasler, 1996). The most powerful protests may be those that are "now out of never" (Kuran, 1991).

This paper makes three contributions. First, we provide a novel empirical strategy for measuring exogenous variation in protest size, advancing the nascent methodological literature on instrumental variable analysis of social movements. Second, we provide evidence for a counter-intuitive picture of protest effectiveness that clarifies when protests are likely to affect short-term government action, with implications for long-term impact. Third, we contribute to a small but growing quantitative literature examining protest and government responsiveness at the event level outside of developed Western democracies.

2 Protest Participation and Government Concessions

The early social movements literature largely did not consider the question of political impact. Tarrow (2011, 170) described the impact of social movements as "ambiguous" due to the mediating effects of the political process. McAdam and Su (2002) identified two countervailing reasons for this lack of focus: "Social-movement scholars within sociology appear to have assumed the efficacy of movements...whereas political scientists have tended to view social movements as politically ineffectual." Yet more recently there has been growing interest in both disciplines in testing whether social movements in general, and public protest in particular, affect political outcomes. Findings have been mixed. To mention just a few examples, Giugni (2007) finds that movements have little impact absent several favorable conditions, and Soule and Olzak (2004) finds that social movement organizations supporting the Equal Rights Amendment were effective primarily when they had elite allies.

In contrast, Madestam et al. (2013) find that the 2009 "Tea Party" protests had a broad range of impacts from policy changes to shifts in electoral outcomes. Similarly, Wasow (2020) finds that proximity to peaceful civil rights movement protests in the late 1960s significantly increased the Democratic vote share in the 1972 presidential election, and Htun and Weldon (2012) find that feminist mobilization in civil society is the key factor explaining variation in the adoption of violence against women policies across 70 countries.

Whether movements have a long-term political impact is contested in part because movements' impact is often conceptualized and measured inconsistently across cases, and the literature has examined a variety of operationalizations (Amenta et al., 2010). Movements may influence elections (Andrews, 1997; McAdam and Tarrow, 2010), change policy (Amenta, 2008; Andrews, 2001) gain greater social acceptance for marginalized groups (Gamson, 1990), influence corporations' stock price (King and Soule, 2007), put previously-ignored issues on the political agenda (Andrews and Edwards, 2004; King et al., 2007) or impact outcomes at second or third remove through their influence on other related movements (Meyer and Whittier, 1994).

One more tractable outcome to examine are short-term concessions to social movements in response to specific events (Muller and Opp, 1986; Carey, 2006). By government concessions we mean public statements by the government to change policies in line with the demands of protesters, or immediate changes of policy or personnel in response to those demands. We understand concessions in a broad sense, including statements to make changes in line with protester demands, whether or not those demands were in fact implemented. Such a conceptualization is consistent with much of the literature on civil resistance that focuses on short-term concessions – such as promises of democratization – whether or not those institutional changes actually eventuate (Chenoweth and Stephan, 2011; Schock, 2005).

Concessions come in many forms. Examples in our data (discussed in more detail below) include promises for institutional reform such as those made in mid-May 2001 by then Algerian President Bouteflika to enshrine the Berber language in a future revision of the constitution and establish a national commission of inquiry into police violence. These

promises were made in response to large protests against discrimination and state repression in a predominately Berber region of the country (Monitoring, 2001). They also include more immediate changes, such as the sacking of a key military commander in Yemen after protests on the same day demanding a restructuring of the army (Presse, 2012). They also include larger concessions such as the resignation of President Hosni Mubarak in the face of massive protests on 11 February 2011 or the departure of President Ben Ali in January 2011 from Tunisia and the promises of elections and democratization made thereafter.

As these examples illustrate, concessions are often a strategy that governments employ to deescalate a significant moment of social mobilization. They are offered as signals of openness to change in the short term to prevent further mobilization. While the two may be thought of as competing strategies, they are often offered simultaneous to violent repression as a way of heightening the contrasting costs of continuing or calling off mobilization (Belgioioso et al., 2018; Cunningham and Beaulieu, 2010) They thus typically occur either concurrently with or immediately after a major protest or other public social movement mobilization.

Concessions are certainly not the only important outcome when examining movement impact, nor do they necessarily lead to long-term change in line with a movement's goals. We view concessions as a necessary but insufficient condition for long-term movement political impact, and as such a meaningful object of empirical study. Concessions may or may not lead to the achievement of a movement's long-term goals, but if political change is going to happen it will likely first occur as short-term concessions. What are the conditions that motivate governments to offer concessions to social movements? While many factors play critical roles in specific cases, one of the most important characteristics of social movements that appear to motivate government concessions are the levels of participation in the movements' public actions, particularly protests. We examine the mechanisms through which this effect obtains in the following section.

2.1 Protest Participation and Effectiveness

There is ample evidence that large protests increase the probability of government concessions relative to small protests across autocratic and democratic regimes (Madestam et al., 2013; McAdam and Su, 2002; Walgrave and Vliegenthart, 2012). Size is by no means the only factor that influences the outcome of protests and other social movement activities. For instance, Cress and Snow (2000) point to organizational viability and the rhetorical validity of movement frames as key factors influencing success, and Johnson (2008) points to the importance of size's interaction with organizational diversity. However, size is one of the most consistently-identified factors positively influencing movement outcomes. Amenta et al. (2010) point to the greater effectiveness of "large" social movements as one of the key patterns in research findings on the subject. Movement size can be operationalized in various ways, for instance by looking at either the number of protests or the number of participants in protests. We argue, following Biggs (2018), that focusing on the number of participants in protest rather than the number of protests is preferable since most protest campaigns exhibit extreme variation between large and small events. The overwhelming majority of protests have very few participants, while the overwhelming majority of participants only join a few very large protests. DeNardo (1985, 36) also emphasizes the importance of the number of participants in shaping the potential effectiveness of a movement:

The size of the dissidents' demonstrations affects the regime both directly and indirectly. Naturally the disruption of daily routines increases with numbers and the regime's ability to control crowds inevitably suffers as they grow larger. In addition to the ***immediate disruption*** *that they cause, demonstrations (by their size) also give the regime an* ***indication of how much support the dissidents enjoy*** (emphasis ours).

Other examples include Chenoweth and Stephan (2011, 39-40) who identify that "participation and success go together" but that the diversity of participation may condition the ability to adapt tactically to repression, generate backfire and security force defections

(see also Schock, 2005). Klein and Regan (2018, 493-494) argue that protesters can coerce regime accommodation by increasing "disruption costs" that are conceptualised primarily as "tangible" economic and governance costs. Yet, their argument is embedded in a broader bargaining model where the protesters aim to signal to the regime that its core support group is fragmenting.

Why do larger protests lead to concessions? McAdam and Su (2002) argues that "disruption" and "signalling" mechanisms are key to explaining how protest might impact policy.The disruption mechanism implies that demonstrations can make the status quo immediately and economically costly for the regime – in response the government offers concessions to end those costs. Protests can cause declining GDP, lower international confidence in the stability of the regime, make parts of the country ungovernable and shut down transport networks or businesses Klein and Regan (2018). Large protests can be very difficult to repress which may be very costly for the regime if it must compensate the security forces Bueno De Mesquita (2005). As such, large protests impose large costs upon the regime that make conceding to the opposition a more attractive option in the short term. Klein and Regan (2018)'s study of regime concessions, for example, conceptualizes the costs imposed by large, enduring protests in terms of the economic disruption they can inflict.

Signalling mechanisms emphasize that large demonstrations provide a signal of the breadth of opposition support and communicate information about the organizational strength and skill of the protest organizers, the capacity of the regime to govern, and the stability of the regime's support coalition (Burstein and Linton, 2002; Rojas, 2006). Classic signalling models include Lohmann (1993) who argues that it is the unexpected participation of moderates in protest that signals that the regime's ability to contain dissent is crumbling (see also Kuran, 1991). Such participation can trigger cascades of further participation, revealing that the regime is no longer able to contain dissent and has weakened. Concessions may be the response in this situation. Key to signalling based models is the *new information* that the nature of the participants in a protest carries about the support for the opposition and the ability of the regime to contain dissent. Large numbers of participants send a stronger

signal of discontent that political leaders must choose to respond to.[2]

These two mechanisms are much-discussed in the literature (e.g. Piven and Cloward, 1977; Gamson, 1990; Rojas, 2006; Luders, 2006; King, 2011), due to their distinctive implications for the relationship between size and impact. Clearly the ability to impose economic costs today is a signal that these costs may also be forthcoming tomorrow. In addition, as protests become larger they probably involve the participation of new groups that may have a greater ability to impose such economic costs on the regime. As such, the assumption in many studies is that both the signal of opposition strength and the level of disruption rise as protests become larger (DeNardo, 1985). However, whether regimes concede because of visible disruption costs today or whether they concede because they have learned new information about the instability of their support coalition are distinct mechanisms. This becomes clear if we consider that protests can be very disruptive but signal little new information about the stability of the regime. Protests in Bahrain in 2011 were some of the largest ever seen in terms of per-capita participation but their concentration in (excluded) Shia majority groups imparted little new information about the stability of the Sunni dominated regime (Fakhro, 2016). Similarly, although the protests following the military coup in 2013 in Egypt were large and disruptive, they were narrowly concentrated in the Muslim Brotherhood and its affiliates. Regime concessions were not forthcoming in either case. On the other hand, protests in Tunisia before the fall of President Zine El-Abedine Ben Ali in 2011 were comparatively small, not more than tens of thousands in Tunis, but involved participation from labor unions, youth groups, women's organizations, dissident groups and religious political parties (Honwana, 2013). The disruption that protests cause and the information they impart are likely correlated but are conceptually distinct.

For the moment, it is sufficient to note that protest sizes are thought to generate regime concessions through both signalling and disruption mechanisms. Further in this paper we show some surprising *negative* associations between protest sizes and regime concessions that emerge when we account for endogeneity (discussed below) across two datasets. In the

[2]Large numbers of participants also means that the signal is more likely to be transmitted in the first place, as the media is more likely to cover larger protests (Oliver and Myers, 1999)

discussion section we return to the question of signalling vs disruption and argue that our results are better explained by signalling models than disruption models. This concluding discussion makes a contribution to the debate about *why* larger protests drive concessions in non-western contexts. Studies that distinguish empirically between the impact of signalling and disruptions mechanisms have primarily been limited to Western democracies, and, for the bulk of work, to a single country: the United States (e.g. Gamson, 1990; Rojas, 2006; Madestam et al., 2013; Gillion, 2020). This is in part a matter of data availability. Making careful inferences about the scale of disruption or the power of signalling often requires deep case-specific knowledge that can be difficult to obtain outside developed democracies. Yet this means that we have few broad insights into how these mechanisms may or may not work globally. Even within developed democracies, protests' impact on the political process can be radically different. For instance, Walgrave and Vliegenthart (2012) find very different effects of protest on the policy-making process in Belgium relative to common models in the literature developed based on research in the United States. The political opportunity structures in autocratic or hybrid regimes are even more sharply divergent than this (Svolik, 2012).

2.2 Endogeneity concerns

While there are plausible theoretical mechanisms linking larger protests to regime concessions and a stock of empirical evidence to support the general claim, the potentially endogenous relationship between protest size and government concessions is an important remaining challenge. If citizens perceive a higher likelihood of government concessions, even those who previously supported the government may go into the streets to align themselves against it (Kuran, 1991; Muller and Opp, 1986; Klandermans, 1984). The anticipation of concessions thus causes increases in protest size. Given that a high anticipated likelihood of concessions by potential protesters is likely correlated with actual concessions in the future, any causal relationship between large protests and government concessions may thus be spurious, simply reflecting potential protest participants' accurate anticipation that concessions

are forthcoming.

That anticipated concessions likely generate larger protests is well-supported. For instance, as Rasler (1996) discusses, an openness to reform by the Shah during the 1979 Iranian Revolution sent a signal that protest participation could generate concessions. This initiated a cascade of increasingly large protests until the Shah fled in 1979. Large protests made concessions more likely, but the anticipated likelihood of concessions also increased the size of protests. This complicating factor of anticipation makes the direct effect of larger protests on regime concessions difficult to determine. This problem also applies to cross-national studies finding that successful civil resistance campaigns tend to be larger than failed campaigns (Chenoweth and Stephan, 2011; Butcher et al., 2018; Chenoweth and Belgioioso, 2019; Klein and Regan, 2018). It may be that large protests cause concessions (and opposition success) but it may also be that correct anticipation of forthcoming regime concessions triggered cascades of participation, which would explain why successful movements tend to have larger protests.

One common method for dealing with endogeneity problems such as this is to find an instrumental variable that can predict the main independent variable of interest (in our case, protest size) but is not causally related to the dependent variable (concessions) except through its effect on the independent variable. Instrumental variables are common in economics, and increasingly common in political science and sociology, but remain rare in the study of social movements and protest. There are good reasons for this rarity. Finding appropriate instrumental variables is a notoriously thorny problem even for relatively straightforward relationships. In the dynamic interplay of protests and government reactions, this is a particularly difficult challenge. Yet the problem is by no means insurmountable, as shown by studies that have used instrumental variables to examine social movement tactical diversification (Wang et al., 2019), the effect of women's activism on female earnings (Akchurin and Lee, 2013), or changing attitudes towards protest (Ketchley and El-Rayyes, 2021).

The only studies that we are aware of using an instrumental variable approach specifically to examine protest size and outcomes are Madestam et al. (2013) and Wasow (2020), both of

which use rainfall to instrument for protest size. This is a powerful instrument in the United States, where detailed and reliable local weather data exists, yet is more problematic in less economically developed states, where the maintenance of weather stations varies based on local political conditions (Schultz and Mankin, 2019).

If weather data may not be an effective instrument for capturing the exogenous variation in protest size, what are the alternatives? In particular, we are interested in an alternative instrumental variable that is reliable and easily measurable across a wide variety of non-Western contexts. The following section outlines our novel strategy for approaching these problems.

2.3 Fridays and Protest in the Muslim World

The measure that we argue meets these criteria is whether the day of the week on which a protest occurred was a Friday in a predominately Muslim country. For an instrument to be valid it must satisfy the following conditions: (1) The instrument must be exogenous – it must not directly cause the dependent variable or be caused directly by the dependent variable, (2) the instrument must be valid in the sense that it has a non-zero correlation with the independent variable, and (3) the instrument must not predict or be correlated with other variables that also affect the dependent variable (Morgan and Winship, 2015). Do Fridays meet these conditions?

In the Islamic week, Friday is the day of "congregation" when observant Muslims attend Mosque for prayers and hear an Imam preach. Fridays are specifically mentioned in the Qur'an, most prominently in the "Friday" Surah (Surah 62), as the day where believers should assemble for prayer and hear the word of God preached. Unlike the "Sabbath" in Christian and Jewish religious calendars, Friday is not specified as a day of rest. While many businesses in the Muslim world do close on Fridays, or at least close briefly in the afternoon to allow employees to attend prayers, there is no blanket prohibition against work that we are aware of. Indeed, the Qur'an encourages Muslims to engage in buying and selling once prayers are completed (Surah 62:10). Specific work practices on Fridays vary significantly

across Muslim-majority countries, with Friday included as part of the weekend in some countries, such as Egypt or Bahrain, and not in others, such as Pakistan or Morocco.[3]

Regardless of work practices, Friday prayers are widely observed in the Muslim world. Tezcur et al. (2006) shows that across 11 predominately Muslim countries between 40 and 70% of reporting Muslims attended weekly prayer. The proportion is significantly higher for men in some countries (Algeria, Jordan, Morocco and Turkey). In the third wave of the AfroBarometer survey (2012-2014) which covers 12 predominately Muslim countries, roughly 63% of Muslims reported attending Friday prayers "Always" or "Most of the the time", while 76% of men reported the same activity. This varies across countries with as high as 80% of Muslims reporting to attend Friday prayers some or all of the time in Egypt (and similar numbers for Sudan, Yemen and Jordan) to as low as 43 % in Tunisia. For men, 94% report this activity in Egypt, Libya and Sudan.[4].

Across many predominately Muslim countries, Fridays act as "focal days" for protests (Ketchley and Barrie, 2020). Fridays are likely to lead to larger protest sizes in the Islamic world by enabling individuals to overcome collective action problems. The ability for groups of potential protesters to signal that they will participate in a demonstration or other act of resistance is critical to achieving collective action (Lichbach, 1987). The close-proximity congregation at Friday prayers are an ideal setting in which to achieve this. Individuals can easily signal their intention to protest during prayer meetings (and are sometimes encouraged to do so by Imams) and because protests often *follow* directly from Friday prayers, individuals can monitor the protest behavior of others. Local mosques are also likely to cultivate high-trust networks over repeated interactions, which are critical for high risk activism (McAdam, 1986; Wood, 2003; Petersen, 2001). Friday prayers and the mosque have been identified as critical mobilization infrastructures in many of the protest campaigns associated with the Arab Spring. Mosques were a common space for organizing protests in the early stages of the Syrian Revolution as they were perceived to be safe spaces where the

[3]We include tests to account for differences in weekend practices in the online appendix. Overall, the results suggest that the negative associations we observe between larger protests and regime concessions are not primarily driven by the possibility that protests are less disruptive on Fridays.

[4]Respondents are likely to overstate mosque attendance in a similar way to Christians overstating church attendance (Brenner, 2014)

regime was less willing to use violence (Pierret, 2012). Mosques and Friday prayers have also been identified as important sites for contentious mobilization in Pakistan (Butt, 2016) and Nepstad (2011, 126) concludes that religious institutions constituted "free spaces" and that "the sacred nature of these institutions makes it more difficult for dictators to take repressive action against them, thereby giving them a degree of protection".[5]

If Fridays are days when activists in predominately Muslim countries can more readily overcome collective action problems then Fridays should correlate with larger protests. Previous studies have identified such a relationship. For example, Steinert-Threlkeld (2017) identifies a general "Friday effect" on the number of protest events using the ICEWS data across the Middle East and North Africa, and Ketchley and Barrie (2020) finds a strong "focal day" effect for Fridays during the Egyptian revolution in 2011.

Fridays are unlikely to directly cause government concessions, except through increased protest sizes. For this to be true, there would have to be a reason to think that regimes would be significantly more or less likely to give protesters concessions because their protest took place on a Friday for reasons unrelated to the bump in mobilization caused by Friday prayers. A possibility would be that prohibitions on work might prevent some regimes from giving concessions on holy days, if only because the bureaucracy is not as well staffed. However, concessions in response to a specific protest need not take place on the same exact day as the protest itself. Both the datasets we employ below measure concessions such that the concession could easily take place either on the Friday itself or on a regular working day shortly thereafter. We argue for these reasons that Fridays are an *exogenous* instrument for protest size.

2.4 What else do Fridays predict?

For the exclusivity assumption to be satisfied there must be no other causal pathways through which Fridays could affect government concessions other than the pathway related to mobilization and protest sizes discussed above. Fridays, however, may also predict other di-

[5]For important contributions on the role of "free spaces" in social movements see Rao and Dutta (2012) and Zhao (1998)

mensions of these protest events, independent of their size, that may explain any association with government concessions. In particular, it is plausible that the types of anti-government protesters who come to the streets on Fridays might be different from the types of protesters who come to the streets on other days. Fridays likely predict high participation by more formal Islamic groups or organizations, potentially indicating that protesters are drawing from a social base of protesters that the regime already knows are opposed to it. Fridays may also predict events that are more geographically concentrated in public places (such as demonstrations) as opposed to dispersed or nationwide events and strikes. Thus, in our tests below, we close off these alternate avenues for protest on Fridays to affect government concessions with information on protest actors, geographical dispersion, the use of economic non-cooperation and whether concentration tactics were used, as well as a number of other potential differences in protest profiles. These potential violations of the exclusion restriction are discussed in more detail in the methods section.

In short, to set up our instrumental variable approach we hypothesize the following:

H_1: Protests on Fridays will have more participants than protests on other days of the week in predominately Muslim countries.

If our first hypothesis is correct, since variation in protest participation due to the Friday effect should be exogenous to the likelihood of government concessions, any effect of instrumented protest size on concessions should be closer to the true exogenous effect of protest size on the likelihood of concessions. As we have described above, the existing literature strongly indicates that larger protests should lead to more concessions. Thus, if the existing literature accurately captures these dynamics, the following hypothesis should be true:

H_2: Larger protest size, instrumented through whether the day of the week is a Friday, will increase the likelihood of government concessions in predominately Muslim countries.

3 Primary Analysis: NAVCO 3.0 Data

3.1 Dependent and Independent Variables

For our primary analysis of protest size and government concessions we use the Nonviolent and Violent Campaigns and Outcomes (NAVCO) 3.0 dataset (Chenoweth et al., 2018). NAVCO 3.0 is an event-day dataset of political events in 26 countries that have experienced major protest movements or armed conflicts from 1990 to 2012. Events in NAVCO 3.0 are hand-coded based on reports from major international newswire services. Relying on newswires rather than newspaper articles addresses some of the issues of bias towards size and global significance in using international media sources to examine protests, since newswire reports do not have the same space limitations as newspapers (Day et al., 2015). However, it is still near-certain that the protests included in NAVCO 3.0 are not a complete account of all protest activity in the countries in question, and are likely biased towards large protests in major urban centers. We address the implications of this for our findings in the conclusion.

Fourteen of the countries included in NAVCO 3.0 are predominately Muslim, including all the major countries involved in the "Arab Spring."[6] These 14 countries constitute the "predominately Muslim" sample while the remaining 12 are the non-predominately Muslim sample. We identified predominately Muslim countries using the World Religion Dataset (Maoz and Henderson, 2013), which includes estimates of the adherents of each major world religion for every country in the world from 1945 through 2010. The countries in NAVCO 3.0 that we include as predominately Muslim are not only majority Muslim, but overwhelmingly so, with an average of 93.1% of the population identifying as Muslim, while the non-predominately Muslim countries have an average of 10.6% Muslim population.

Each event-day in NAVCO 3.0 is coded following the CAMEO event structure, with three basic components: an *actor* that performs a *verb* on a *target* (Schrodt et al., 2005). NAVCO 3.0 adds several additional variables to the basic CAMEO structure, including information on levels of violence, government responses, and casualties or property damage. We selected

[6] Algeria, Bahrain, Egypt, Iraq, Jordan, Libya, Morocco, Pakistan, Sudan, Syria, Tunisia, Turkey, Uzbekistan, Yemen

all events that were primarily "nonviolent" with goals that were known and were events of "protest", "non-cooperation" (such as strikes) or "intervention" (such as a sit in).[7] We then collapsed the data into a country-day dataset, summarizing the main variables across country days as described below.

The main dependent variable is whether the regime offered concessions in response to that event, which is taken from NAVCO 3.0's "state posture" variable. This variable takes a "1" if the state offered "full accommodation," "material concessions," or "non material concessions," in response to an event on that day. A major advantage of the NAVCO 3.0 data is that the government response variable is defined in relation to the event itself, so we can be more confident that the concessions are in fact a response to political contention and not epiphenomenal to it. Concessions do not have to occur immediately after protest events. The main criteria is that there is a clear and direct link between a specific event and a concession. For example, a regime may respond with concessions in the week after a protest, and the NAVCO 3.0 data set codes these concessions where they are identified in newswires as being in response to protest events. Nonetheless, this method may understate regime concessions in response to protests but not explicitly identified in newswires as being so, or there may be error in how coders attribute state responses to protests in dynamic periods of contention. While this method may include significant random error, we see little reason why this error should be correlated with our variables of interest.

The main independent variable is the sum of non-missing protest sizes on each country-day. Country-days do not typically have more than one protest, but where they do we sum the number of participants across those events. This gives a count of the number of participants in acts of nonviolent dissent on that country-day. Following Biggs (2018), we use two variations of participation size in the models below: (1) the logged number of participants (+1) and (2) the square root of the number of participants. Using these two transformations reduces the impact of outliers – there are a handful of extremely large protests in the sample – on the model output.

[7] In the dataset these are events where the 'Tactical Choice' variable was $>= 1$, the 'Campaign Goals' were $<= 6$ and the 'NV Category' was < 4.

3.2 Control variables

As discussed, there are strong reasons to think that Fridays are positively correlated with participation but not directly related to government concessions. However, to better satisfy the exclusivity assumption of instrumental variable analysis, we include several control variables. The main analysis uses two-stage Ordinary Least Squares (2SLS) models with country and year fixed effects, which allows us to isolate variation within specific countries and minimizes the impact of shocks that may have affected the propensity for contention across predominantly Muslim countries, such as the 9/11 attacks or the "Arab Spring."

Models were run with both independent variables (logged participation, the square root of participation) and on the sample of predominately Muslim and non-Muslim countries separately. To control for the impact of repression we include a measure of the estimated number of people killed in contention. Governments may be particularly unlikely to grant concessions to groups whose goals threaten the territorial integrity of the state (Chenoweth and Stephan, 2011; Svensson and Lindgren, 2011), thus we include a binary control variable measuring whether a protest had goals of "secession" or "territorial autonomy" according to NAVCO 3.0. These two controls are included in all models. We then run models with "extra controls" to close off other pathways through which Fridays may lead to concessions by generating different types of protests, independent of their size. We control for five aspects of protests that may correlate with our Friday instrument: the geographical scope of protests measured as the number of distinct locations identified in the NAVCO 3.0 data for all events on the observation-day (from the localities variable), the use of concentrated protest tactics as opposed to dispersed protest tactics (from the nv_concentration variable), the number of events with some opposition violence (using the tactic_choice variable), the number of events of economic non-cooperation, such as strikes (using the nc_type variable), and whether or the protest was associated with explicitly Muslim actors or organizations. To identify Islamic actors we coded a '1' if the event actor text in NAVCO 3.0 contained any of the following text strings (not case sensitive): Islam, Muslim, Sunni, Jihad, Shia, or Salafi. In addition, we coded a second dummy variable if any of the CAMEO actor codes

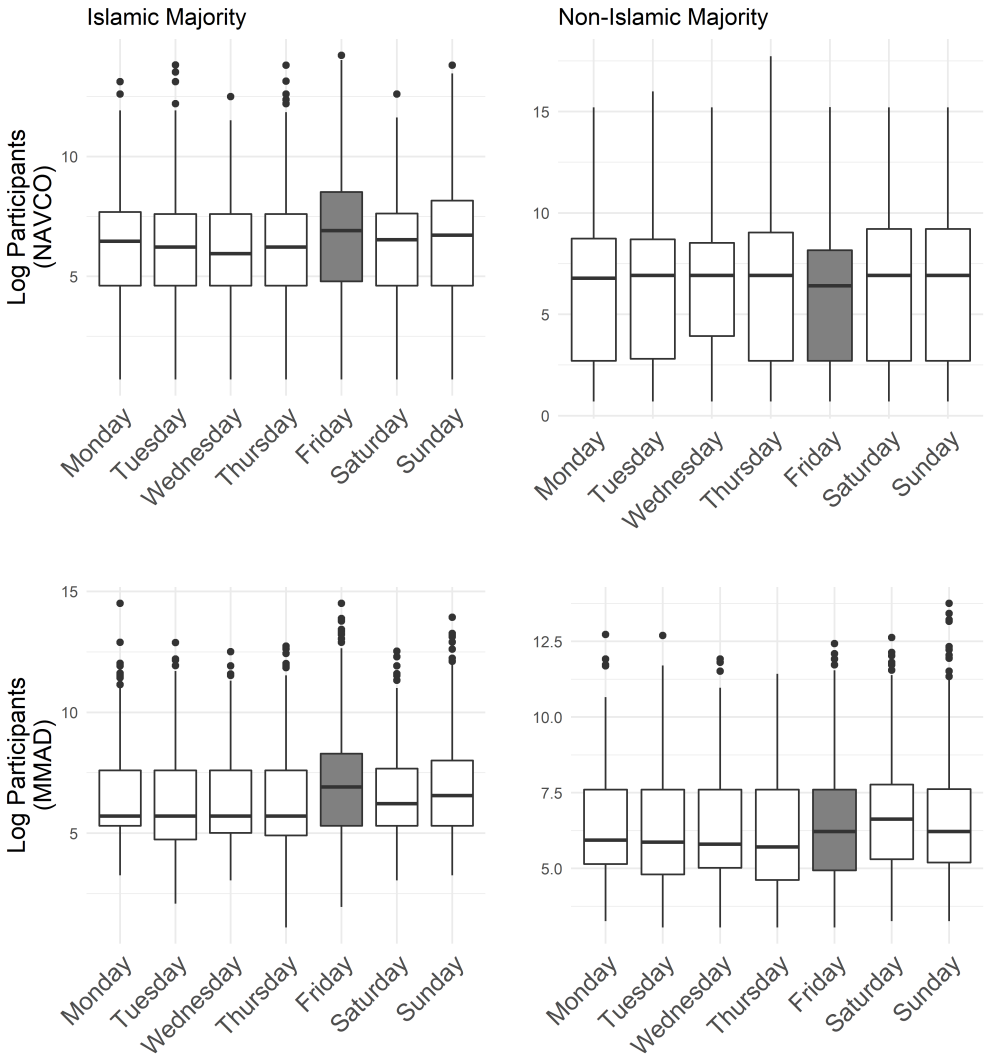
identified the actor as Muslim (general), Sunni or Shia.

4 Primary Results (NAVCO 3.0 tests)

4.1 Summary Measures

First, we present results for our hypothesis that Fridays predict higher protest sizes in predominately Muslim countries (H_1). We find strong initial evidence supporting this hypothesis. For the 14 predominately Muslim countries covered in NAVCO 3.0 the average size of events of nonviolent contention was 16,022 people on Fridays compared to 7,824 on other days of the week. This is not the case in the 12 non-predominately Muslim countries where Fridays are correlated with smaller protests (36,533 people on Fridays and 57,565 on other days of the week). Figure 1 compares boxplots of the average protest sizes across days of the week in predominately Muslim and non-predominately Muslim countries. There is a distinctly higher distribution of protests on Fridays relative to other days of the week in Muslim countries, but not in non-Muslim countries.

Figure 1: Protest Sizes Across Days of the Week



The strong positive correlation between Fridays and large protests in predominately Muslim countries holds in statistical models as well. In a simple, country fixed effects OLS model, Fridays predict approximately 7,400 extra protesters (a statistically significant effect) while there are 17,403 fewer protesters on Fridays in non-predominately Muslim countries (and this effect is not significant at the $p < 0.05$ level).

Do Fridays affect other protest characteristics likely to influence government concessions? Table 1 shows how 11 different dimensions of protests vary by whether the event occurred on a Friday. The first column shows the average number of events on a given day, as Fridays may be associated with fewer or less dispersed events. We also examine whether

Fridays are correlated with geographically narrower protests, whether they were associated with concentration tactics (i.e demonstrations) compared to dispersion tactics that may be more effective at weathering extreme repression (Teorell, 2010; Schock, 2005), whether the events were associated with more opposition violence or whether they were associated with fewer events of economic non-cooperation such as strikes. Finally, Fridays should predict high participation by Muslim actors or participation narrowly concentrated around Islamic actors, potentially indicating that protesters are drawing from a narrow social base that the regime already knows is opposed to the regime.

Table 1: Friday Protests and Other Features of Mobilization

Muslim Majority	No	No	Yes	Yes
Friday	No	Yes	No	Yes
No. Events	1.22	1.18	1.14	1.13
No. Distinct Locations	1.45	1.39	1.45	1.92
Concentration	0.50	0.47	0.60	0.70
Participation Size	57564.87	36533.35	7824.19	16022.09
Economic Impact	2.37	2.35	1.43	1.42
Fatalities	0.08	0.05	0.20	1.82
Injuries	0.85	0.80	2.34	1.96
Muslim Actors	0.00	0.04	0.11	0.19
Muslim Actors (text)	0.00	0.04	0.09	0.15
No. Events with Opposition Violence	0.04	0.04	0.06	0.07
No. Economic non-coop events	0.37	0.38	0.13	0.10

In Islamic countries, Fridays do not appear to predict days with significantly fewer protest events, days with fewer protest localities, or more protest events with opposition violence. Fridays do, however, predict a higher rate of concentration tactics, fewer events of economic non-cooperation and a higher rate of participation by explicitly Islamic or Muslim actors. In addition, protests on Fridays in Islamic countries are significantly more lethal with approximately 1.82 deaths each day on Friday protest events compared to 0.2 deaths on non-Friday events. Thus, to satisfy the exclusion restriction we include these variables as controls in the main regression models to better isolate the effects of protest size.

4.2 Naive Regression Models

Table 2 shows the results from naive models that do not instrument for protest size. In the predominately Muslim sample we see the expected positive and significant relationship between protest size and government concessions using both independent variables for the Islamic majority sample. Only the logged protest size variable is significant at the $p < 0.05$ level outside of predominately Muslim countries, although all coefficients are positive.[8] At least within the sample of predominately Muslim countries, this comports with the expected positive relationship between large protests and government concessions found in the existing literature. Yet, as we have argued above, these findings may be spurious due to endogeneity from the unobservable anticipation of concessions. What happens to this picture when this endogeneity is addressed?

	MM	MM	Non-MM	Non-MM
Participation Size (log)	0.002*		0.005***	
	(0.001)		(0.001)	
Participation Size (sqrt)		0.000***		0.000
		(0.000)		(0.000)
Fatalities (log)	−0.005	−0.007	0.020	0.017
	(0.007)	(0.007)	(0.018)	(0.018)
Territorial Goals	0.003	0.003	−0.072***	−0.081***
	(0.014)	(0.013)	(0.021)	(0.021)
Muslim Majority	Yes	Yes	No	No
Country and Year FE	Yes	Yes	Yes	Yes
R^2	0.036	0.038	0.057	0.053
Adj. R^2	0.027	0.029	0.046	0.042
Num. obs.	4215	4215	3089	3089

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table 2: Naive OLS Models, NAVCO 3.0 Concessions

4.3 IV Regression Analysis

Table 3 shows the first-stage regressions of Fridays on protest size. Fridays consistently predict higher protest sizes in predominately Muslim countries using both independent variables but not in other countries. Fridays appear to lead to larger protests in predominately

[8]This may reflect differences in the impact of protest sizes across different political institutions, with the U.S, South Korea and India being established democracies.

Muslim countries, and thus are a plausible instrument for larger protests.

	Log Part.	Sqrt Part.	Log Part.	Sqrt Part.
Friday	0.47^{***}	12.85^{***}	$-0.23^{\cdot}$	-7.96
	(0.09)	(3.16)	(0.13)	(10.15)
Fatalities (low)	0.70^{***}	27.90^{***}	$-0.44^{\cdot}$	23.24
	(0.10)	(3.34)	(0.26)	(20.34)
Territorial Goals	0.45^{*}	9.54	-2.28^{***}	-105.72^{***}
	(0.19)	(6.61)	(0.29)	(22.81)
Muslim Majority	Yes	Yes	No	No
Country Year FE	Yes	Yes	Yes	Yes
R^2	0.34	0.14	0.54	0.21
Adj. R^2	0.33	0.13	0.54	0.20
Num. obs.	4215	4215	3089	3089

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table 3: First Stage Models of Protest Size, NAVCO 3.0 Concessions

Table 4 shows the results from models that instrument for participation with an indicator of whether the day was a Friday. In the sample of predominately Muslim countries, the effect is now substantially larger. However, the sign is negative and significant at the $p < 0.05$ level across both models. In other words, these models predict that as protests become larger due to the exogenous influence of a protest taking place on Friday the likelihood of government concessions decreases. This impact is not trivial with a shift in protest size from the median (logged) value of 4.62 (roughly 100 protesters) to the 90th percentile value of 9.39 (roughly 12,000 protesters) producing a 9.5 percentage point drop in the probability of concessions. This a proportionally large change because only around 3% of the event days in our NAVCO sample obtain concessions.

As expected, in the sample of non-predominately Muslim countries, Fridays do not predict protest sizes as strongly and the effect of protest size on concessions is not distinguishable from zero, although it remains positive in all specifications. There is little evidence that the IV regressions are more consistent than the naive regressions in the non-predominately Muslim sample. This strengthens our confidence that the effect we have identified is genuine, following a plausible empirical pathway, and not a statistical artifact.

The initial results thus undermine H_2, predicting that larger protests should lead to more concessions. Instead, it provides evidence for a counter-intuitive negative effect whereby governments in predominately Muslim countries were less likely to respond to larger protests with concessions. We emphasize that the country and year fixed effects models imply that this negative relationship obtains within countries. Larger protests could explain cross-national variation in concessions. The negative, significant relationship between protest sizes and concessions are robust to IV models without country fixed effects, however (models shown in the online appendix).

	MM	MM	Non-M	Non-M
Participation Size (log)	-0.03^{*}		0.03	
	(0.02)		(0.04)	
Participation Size (sqrt)		-0.00^{*}		0.00
		(0.00)		(0.00)
Fatalities (low)	0.02	$0.03^{\cdot}$	0.03	0.00
	(0.01)	(0.02)	(0.03)	(0.04)
Territorial Goals	0.02	0.02	-0.03	-0.01
	(0.02)	(0.02)	(0.10)	(0.16)
Muslim Majority	Yes	Yes	No	No
Country Year FE	Yes	Yes	Yes	Yes
Weak Instruments (t-stat)	27.051^{***}	16.52^{***}	3.18	0.615
Wu Hausman (t-stat)	7.186^{**}	7.498^{**}	0.268	0.385
R^2	-0.22	-0.40	-0.02	-0.54
Adj. R^2	-0.23	-0.41	-0.03	-0.56
Num. obs.	4215	4215	3089	3089

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table 4: 2SLS Models: NAVCO 3.0 Concessions

It is possible that this surprising result is due to other protest characteristics associated with Fridays. In Table 5 we present the main IV-regression results including controls for the number of distinct localities where protests occurred on that day, the number of events that used concentration tactics, the number of events with some opposition violence, the number of events of economic non-cooperation, and whether named Islamic or Muslim actors were recorded as participants in the event. Controlling for these alternative pathways does not appear to diminish the negative effect of Friday-predicted protests on government

concessions.

	MM	MM	Non-MM	Non-MM
Participation size (log)	−0.05*		0.02	
	(0.02)		(0.05)	
Participation size (sqrt)		−0.00*		0.00
		(0.00)		(0.00)
Fatalities (low)	0.02	0.03·	0.02	−0.01
	(0.01)	(0.02)	(0.02)	(0.10)
Territorial goals	0.03·	0.03	−0.05	−0.04
	(0.02)	(0.02)	(0.08)	(0.12)
Concentration tactics	0.08*	0.05*	0.01	0.01
	(0.03)	(0.02)	(0.09)	(0.12)
Muslim actor	0.03*	0.01	−0.07	−0.06
	(0.01)	(0.01)	(0.05)	(0.08)
Number of locations (sqrt)	0.06*	0.06*	−0.01	−0.00
	(0.02)	(0.03)	(0.07)	(0.06)
No. events with violence	0.00	−0.02	−0.01	0.01
	(0.01)	(0.01)	(0.02)	(0.04)
No. econonmic non-cooperation	0.17**	0.14*	−0.03	−0.08
	(0.06)	(0.06)	(0.16)	(0.37)
Muslim Majority	Yes	Yes	No	No
Country and Year FE	Yes	Yes	Yes	Yes
Weak Instruments (t-stat)	22.021***	12.921***	2.965	0.392
Wu Hausman (t-stat)	7.133**	7.718**	0.071	0.107
R^2	−0.27	−0.53	0.04	−0.19
Adj. R^2	−0.29	−0.55	0.03	−0.21
Num. obs.	4215	4215	3089	3089

MM = Muslim Majority

Table 5: 2SLS Models: Extra Controls, NAVCO 3.0 Concessions

We conducted a number of further robustness tests. First, we used the "high" estimate of protest size in the NAVCO 3.0 data as an alternative independent variable. The negative association between protest size and concessions is statistically significant ($p < 0.05$) across all instrumented measures of protest size when we use the "high" estimate for protest size. We substituted our concessions dependent variable with the continuous 'state-posture' variable which incorporates repressive, neutral and concessionary responses on a scale (Chenoweth et al., 2018) and the results are not statistically significant, which we think reflects qualitative differences between actively conceding to, ignoring and repressing protests that are

not captured well in a continuous scale. The online appendix also shows the results for a two-stage instrumental variables model using a linear estimator in the first stage (to predict protest size) and a probit model in the second stage (to predict concessions). The results are very similar to those reported here and the negative impact of instrumented protest size on concessions in predominately Muslim countries is statistically significant (at the $p < 0.001$ level) across all operationalizations of protest size. In summary, the results shown in the main text of this paper are some of the most *conservative* in terms of the negative associations we observe between protest sizes and concessions.

5 Second Analysis: The Mass Mobilization in Autocracies Data

Our results may be a statistical artifact of NAVCO 3.0, or perhaps a unique characteristic of the specific countries included in NAVCO 3.0. To assess these concerns, we conducted a second analysis using the Mass Mobilization in Autocracy Dataset (MMAD) (Weidmann and Rød, 2018). MMAD is a dataset of reports of mass mobilization[9] in 69 autocracies from 2003 through 2015. MMAD gathers data at the event-report level. These data can then be aggregated to create a dataset of mass mobilization events.[10] MMAD includes a measure of the number of participants in an event as reported by each of the sources it consults. We use the average of these numbers as our primary measure of protest size. As with NAVCO 3.0, MMAD bases its coding of protests on compiling reports from several different major international newswires, with the attendant advantages and disadvantages of such a data collection strategy.

MMAD does not measure government concessions. Thus, we expand the scope of our dependent variable, looking at whether a range of plausibly concessionary actions take place in

[9]Mass mobilization events are defined in the dataset as "a public gathering of at least 25 people with an expressed political motivation either opposing or supporting a) central, regional, or local government, or b) other non-governmental institutions." (Hellmeier et al., 2019)

[10]We aggregate reports into events by combining all reports of events that take place at the same location, on the same date, and have the same "side" (either pro-government, anti-government, or unrelated to the government).

the immediate aftermath of an event, with our main dependent variable measuring whether a concession took place on the day of a protest or in the three days following. This means that, for instance, if protests occur on both Monday and Tuesday, and a concession occurs on Wednesday, we record concessions as having been given in response to both the Monday and Tuesday protests. Shifting the measurement of the dependent variable in this way comes with strengths and weaknesses that complement our measurement strategy in the NAVCO 3.0 analysis. NAVCO 3.0's coding rules require that concessions be explicitly linked to a specific event in news reporting (Chenoweth et al., 2018, 529). This conservative coding strategy means that while NAVCO 3.0 is likely to have very few false positive concessions it is also likely to include many false negatives; cases in which a concession occurred but was not recorded with a clear link to the event in question. In contrast, linking any concessionary action by the government in the days following a mass mobilization event to that event (as we do in our MMAD analysis) is likely to lead to more false positive concessions, but fewer false negatives. Thus, the two analyses complement one another, and if findings from both point in the same direction provide strong evidence of the finding's robustness.

We draw our measure of concessions from the Integrated Crisis Early Warning System (ICEWS) dataset (Boschee et al., 2015). ICEWS contains over 25 million conflict-related events automatically coded from over 6,000 sources, from international to local media (Ward et al., 2013). [11] Like NAVCO 3.0, the events follow the CAMEO event structure of actors performing verbs on targets. To identify concessions, we select observations from ICEWS that match three criteria: their *verbs* plausibly capture concessionary actions, their *actor* was part of the country in question's government, and the *target* was part of the political opposition.[12] Since concessions do not necessarily happen on the same day as the protest itself, for each day of protest recorded in MMAD we coded whether or not any ICEWS concessions occurred in that day or in any of the following three days.

[11] We considered using ICEWS as our source for protest events as well, but ICEWS does not include information on protest size.

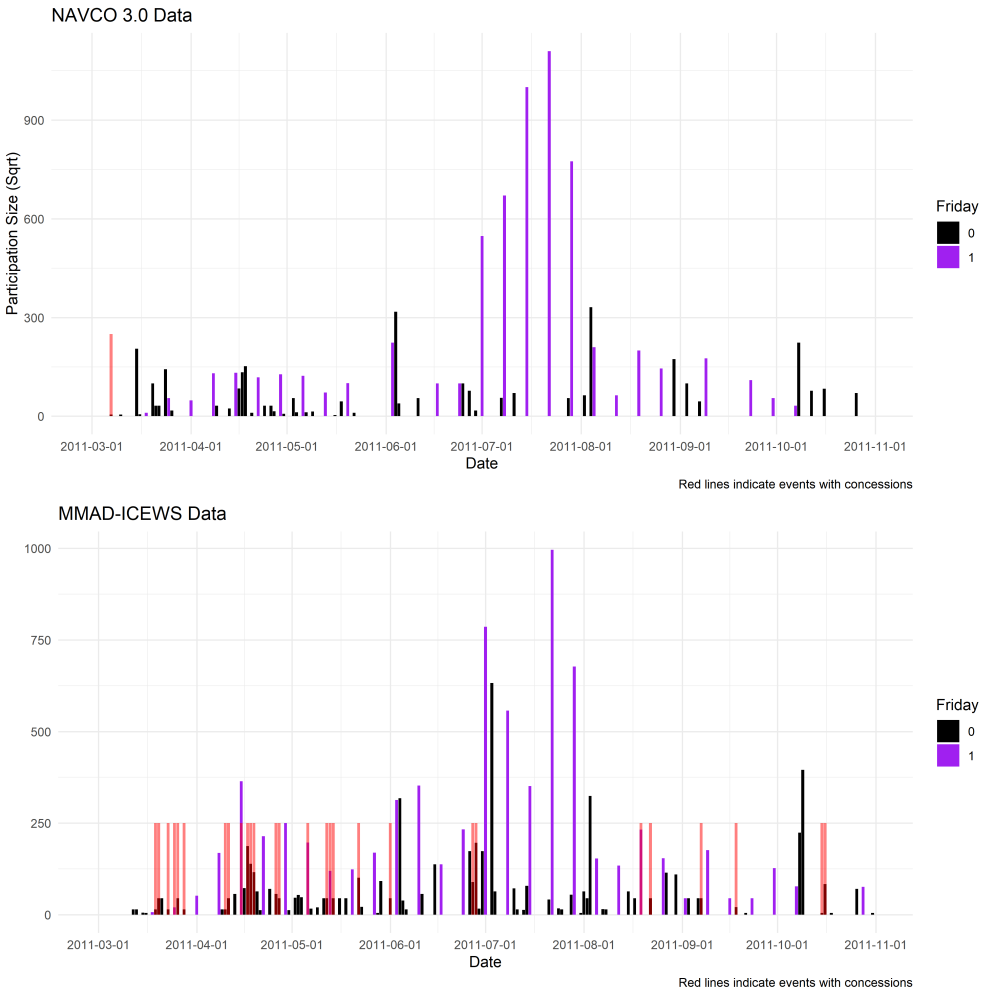
[12] Specifically, we selected all events where the verb was either "Yield," "Express Intent to Cooperate," or "Engage in Diplomatic Cooperation," where the actors' "sector" matched at least one of the terms "Government," "Executive," "Cabinet," "Parliamentary," "Military," "Police," or "Judicial," and the target sector matched at least one of the terms "Opposition," "Dissidents," "Protestors," "Activists," or "NGO."

As we expected, this less conservative strategy for coding concessions leads to a higher baseline probably of concessions in MMAD-ICEWS relative to NAVCO 3.0. While concessions only occur in response to 3% of protest-days in NAVCO 3.0, they occur in response to 14.1% of protest-days in MMAD-ICEWS.[13]

We illustrate the complementary strengths and weaknesses of these datasets by examining protest in Syria from March 2011 to October 2011, the period of the most intense protests against Syrian President Bashar-al Assad. Almost all the largest protests occur on Friday across both datasets and both datasets capture a spike in protest activity in July and August 2011. The NAVCO 3.0 data only identify concessions in March 2011, when the Assad government released several activists directly in response to a hunger strike. The more inclusive ICEWS data capture the concessions in mid-April 2011 when President al-Assad promised to lift a 48 year state of emergency. Although the lifting of the state of emergency occurred in the midst of ongoing protests, the NAVCO 3.0 data do not attribute these concessions directly to a protest event. The ICEWS concessions data do, however, because we relax the requirement the concessions need to be directly attributed to a specific protest.

[13]Tables 1,2, and 3 in the online appendix break down these concession rates by country

Figure 2: Protests, Fridays and Concessions in Syria, March - October 2011



Of the 69 countries included in MMAD, 34 have a predominately Muslim population. These countries have an average of 85.5% Muslim population, while the non-Muslim countries average 8.6% Muslim population. [14]

MMAD includes information on the whether a mass mobilization event was pro-government, anti-government, or unrelated to the government. We filter out pro-government mass mobilization. MMAD also includes an ordinal variable capturing the government's repressive response to mass mobilization, ranging from no repressive response to a lethal repressive response. We include this variable as a control, and include country and year fixed effects to capture other country-specific and year-specific factors that may effect the likelihood of

[14]The 34 predominately Muslim countries are Algeria, Azerbaijan, Bahrain, Bangladesh, Burkina Faso, Chad, Egypt, Gambia, Guinea, Iran, Iraq, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Lebanon, Libya, Malaysia, Mali, Mauritania, Morocco, Niger, Oman, Pakistan, Saudi Arabia, Sudan, Syria, Tajikistan, Tunisia, Turkmenistan, the United Arab Emirates, Uzbekistan, and Yemen.

	Log Part.	Sqrt Part	Log Part.	Sqrt Part
Friday	0.549***	21.475***	−0.095	−1.167
	(0.078)	(3.374)	(0.084)	(2.563)
Repression	0.169***	3.373**	0.061*	1.682·
	(0.030)	(1.277)	(0.031)	(0.941)
Muslim Majority	Yes	Yes	No	No
Country and Year FE	Yes	Yes	Yes	Yes
R^2	0.210	0.151	0.132	0.080
Adj. R^2	0.200	0.141	0.120	0.068
Num. obs.	3948	3948	3964	3964

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; ·$p < 0.1$

Table 6: First Stage Models: MMAD-ICEWS Data

	MM	MM	Non-MM	Non-MM
Participation (log)	0.016***		0.010**	0.010**
	(0.003)		(0.003)	(0.003)
Participation (sqrt)		0.000***		
		(0.000)		
Repression	0.020***	0.022***	0.034***	0.034***
	(0.005)	(0.005)	(0.006)	(0.006)
Muslim Majority	Yes	Yes	No	No
Country Year FE	Yes	Yes	Yes	Yes
R^2	0.116	0.112	0.104	0.104
Adj. R^2	0.105	0.101	0.092	0.092
Num. obs.	3948	3948	3964	3964

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$; ·$p < 0.1$

Table 7: Naive Models: MMAD-ICEWS Data

concessions, such as variations in regime type or level of economic development.

There is a significant "Friday effect" on protest size in all the predominately-Muslim countries in MMAD, but not in the other countries included in MMAD, as shown in Table 3.

Naive models of concessions with the combined MMAD-ICEWS data (presented in Table 7) show similar relationships as in NAVCO 3.0. There is a positive relationship between protest size and the likelihood of government concessions to the opposition some time in the following three days.

	MM	MM	Non-MM	Non-MM
Participation (log)	-0.056^{*}		0.147	
	(0.027)		(0.207)	
Participation (sqrt)		-0.001^{*}		0.012
		(0.001)		(0.029)
Repression	0.032^{***}	0.028^{***}	$0.026^{\cdot}$	0.015
	(0.007)	(0.006)	(0.015)	(0.051)
Muslim Majority	Yes	Yes	No	No
Country Year FE	Yes	Yes	Yes	Yes
Weak Instruments (t-stat)	48.951^{***}	40.513^{***}	1.281	0.207
Wu Hausman (t-stat)	8.437^{**}	6.924^{**}	0.669	0.734
R^2	-0.036	-0.040	-0.364	-3.074
Adj. R^2	-0.049	-0.053	-0.383	-3.130
Num. obs.	3948	3948	3964	3964

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$; $^{\cdot}p < 0.1$

Table 8: 2SLS Models: MMAD-ICEWS Data

However, when we instrument for protest size through our Friday instrument, this relationship reverses, becoming negative and significant for both versions of the independent variable in predominately Muslim countries, as shown in Table 8. The Friday instrument passes a weak instrument test with a t-statistics ranging from 40.5 to 48.95 across the models in predominately Muslim countries and Wu-Hausman tests suggesting that the IV models are less biased than the naive regression models. The substantive effects are large. Moving from the median logged value (6.148 or roughly 1,270 protesters) to the 90th percentile value (9.210 or 27,180 protesters) is associated with a 17 percentage point drop in the probability of concessions, on average.

As with NAVCO 3.0, we sought to close off alternative avenues linking protests on Fridays with government concessions, such as a higher likelihood of participation by explicitly-identified Islamist actors, or protests with Islamist goals. MMAD includes text variables describing the actors involved in a mass mobilization event and their stated goals. We use these text variables to generate dummy variables indicating whether a protest included Muslim actors, or articulated Islamist goals.[15] We use these to control for the greater likelihood

[15]Specifically, whether the listed actors or protest goals included any of the words "Muslim," "Islam," "Sunni," "Shia," "Salafi," "Sharia," or "Jihad."

of Muslim actors or those with Islamist goals protesting on Fridays. The relationships identified in our primary tests are relatively robust to including this control, with the coefficient on protest size remaining negative and significant at the $p < 0.1$ level for both operationalizations of the independent variable. We do think, however, the weaker negative associations between instrumented protest sizes and concessions when controling for the presence of explicit Islamic actors supports our interpretation below, whereby we argue that predicted, routine protest may actually undermine regime willingness to grant concessions. In this case, the presence of Islamic actors protesting on Fridays in higher numbers represents a predictable increase in protest sizes for the regime, carrying little new information about opposition strength and unlikely to attract concessions. Our results are robust to reducing the timeframe between protest sizes and concessions to only the day of protest. If we extend this timeframe to one week, the associations between instrumented protest size and concessions are still negative, but no longer significant at the $p < 0.1$ level. The full regression tables for these tests can be found in the online appendix.

In short, then, the MMAD data provides evidence supporting the NAVCO 3.0 findings. Our first hypothesis, that Fridays should predict larger numbers of protest participants, is strongly evident across both samples. In both cases a naive model shows a positive relationship between protest size and government concessions. However, when we use our instrumental variable to examine the exogenous portion of variation in protest size due to the Friday effect, we see the inverse. Thus, we find evidence against the second hypothesis, that larger protests have a direct effect on government concessions. This is a puzzling finding and we discuss our interpretation below.

6 Discussion: Signalling and the importance of unanticipated protest

What do these results tell us about the relationship between protest size and government concessions? We argue for two significant inferences. First, there appears to be significant

endogeneity between protest size and expected concessions across the countries included in this analysis. When endogenous variation in protest size is removed through instrumental variable analysis, protest size does not increase the likelihood of government concessions, and significantly decreases the likelihood of concessions across several models.

What about the counter-intuitive negative relationship between instrumented protest size and government concessions? We are fairly confident that the result is not a statistical artifact, since we are able to replicate it across two different protest datasets and two different measures of concessions. It is important to re-emphasize that the coefficients in these models do not refer to the impact of all exogenous variation in protest size, but only to that portion of the exogenous variation in protest size from the Friday effect. Put slightly differently, it is the "bump" in protest sizes produced specifically by Fridays in Islamic-majority countries, above what would be average or normal protest levels, that is negatively correlated with concessions. It would be inappropriate to conclude from these findings that larger protests as a whole are less likely to receive government concessions than smaller protests because our associations reflect the "local" effect of larger protest sizes captured by our instrumented variable on concessions, not necessarily a general association. What inferences can be drawn from the specific character of this instrumented variation?

Our interpretation returns to the distinction between signalling and disruption outlined in the theory section. Signalling theories of protest attribute concessions to the increased information about opposition strength that larger protests generate, while disruption mechanisms emphasise the increased, direct (largely economic) costs. We argue that the remaining distinctiveness of Friday protest is that it generates mobilization that can be *anticipated* by governments and thereby represents an increase in protest size that is especially low-information.

Just as we can predict larger protests on Fridays because they take place on a well-known focal day for protests (Ketchley and Barrie, 2020), so can regimes. These increased protest sizes are, therefore, predictable and, often, routine. As Kuran (1991) and Lohmann (1993) point out, *surprising* protests that are unusually large or include new actors should be more

likely to generate concessions. Predicted, focal day, protests carry little new information, even if they are, on average, larger than other protests. Assume, for example that the sample of "normal" protests that occur on other days of the week than Fridays consist of a mix of protest types, some of which are low-information to the regime and some which are high information. The regime will sometimes concede to these protests if they reveal new information about opposition strength, even if they are comparatively small when compared to Friday protests.

When we instrument for protest sizes with "Fridays", the bump generated above these "normal" protest events represents an increase in protest sizes that is predominately low-information because it can be systematically predicted by the regime. If this sample of larger protests consists of largely low-information protests, then it is plausible that the regime will concede less often to these protests than protests on other days of the week, even if protests on Fridays are on average larger. Regimes may be more confident using repression against larger, predicted protests as they do not signal any further regime weakness and the larger participation may enable the regime to target dissidents. We argue that this story and interpretation is consistent with signalling models of protests that emphasise the informativeness of protest events.

What about alternative explanations? Could it be that Fridays also predict protests that are organized by explicitly Islamic actors or protests with Islamist demands, or events that tend to be concentrated in single cities that are easy to police and that often disperse afterwards? We have, to the extent possible, controlled for all these alternative pathways. These adjustments increase our confidence that the findings do not reflect these processes that may correlate with, but be independent of, protest sizes and also associate with concessions. However, this claim is only valid to the extent that these alternative explanations are captured and measured well by the proxies used.

Our contention that the negative correlations between protest sizes and concessions can be explained by signalling mechanisms is only valid if Friday instrumented protest sizes are not also especially low disruption protests. There are several reasons why we think larger

Friday protests are still disruptive. First, while events of economic non-cooperation (which are presumably more disruptive) were less frequent on Fridays in Islamic-majority countries, we control for this in the regression analyses and still find a negative coefficient. Moreover, NAVCO 3.0 includes an indicator of economic impact, and while there are only 129 valid observations in the Islamic-majority sample, Table 1 suggests little evidence that Friday protests are any less economically impactful than events on other days of the week.

Second, The Qur'an and Hadith do not prohibit work on Fridays, but, as described above, many predominately Muslim countries include Friday in the weekend. Yet, while normal business patterns may change on Fridays in some countries, this does not imply that Fridays see an overall decrease in economic activity. Indeed, in countries where normal work does not take place on Fridays, the day is instead often taken up with well-attended public markets and family outings. The Cairo "Friday Market," for example, is one of Egypt's largest public exchanges of second-hand goods.[16] While we cannot precisely measure daily variation in economic activity that could be disrupted by Friday protests, we find good reasons to believe that Friday protests will result in similar levels of disruption as protests on other days of the week.

Third, while we are unable to test the economic disruption of protests (on Fridays or otherwise) directly, we believe a plausible test of this alternative hypothesis is whether we observe a similar relationship as the Friday effect on non-Friday days of the weekend. Table 8 in the online appendix shows the results of this test in a 2-stage least squares instrumental variable model of concessions in the NAVCO 3.0 dataset, instrumenting for protest sizes with the non-Friday days of the weekend (for some countries this is Thursday, for others Saturday, and for others both Saturday and Sunday). Not only is there no significant relationship between participation instrumented by the non-Friday days of the weekend, but the negative sign that robustly appears when we instrument participation with Fridays has been reversed in two out of the three models. Thus, it does not appear that the significant negative effect of Friday-instrumented participation can be explained by Fridays falling on the weekend.

[16] See the description at http://www.touregypt.net/featurestories/gomaa.htm

We also re-run our primary models on the sub-set of predominately-Muslim country-years in NAVCO 3.0 in which Friday was not one of the days of the weekend. These countries are Tunisia, Turkey, Uzbekistan, Morocco, and Pakistan from 1997 onward (Friday was included in the weekend up until January 1997, when the official weekend was shifted to Saturday-Sunday). This eliminates more than half of the observations in our dataset, reducing the total number of observations from 4,215 to 2,046.

Table 9 in the online appendix shows the results of these tests. While the coefficients are no longer statistically significant, they remain negative and of a similar effect size for the logged participation. We interpret the lack of statistical significance thus as primarily reflecting the modest effect size and reduction in the number of observations.

We think this is evidence that the increases in Friday protests are not likely to be less disruptive, at least in ways that are not "controlled for" in the model. Again, we cannot rule out that Friday protests are substantially less disruptive as well as low-information, so it remains possible that our results can be explained by the disruption mechanisms. If this were the case, that Friday protests are both low-information and low-disruption, then our results should be taken to mean that, the causal effect of larger, but predictable and anticipated focal day protests that are both uninformative and un-threatening to the regime, on concessions is likely to be negative. That said, we have provided reasons in this section for why we think it is the specifically low-information nature of predictable protests that lowers the probability of concessions.

While we are confident in our findings, particularly since the same pattern holds across two separate analyses, they also come with several limitations. Much of the work on social movements and protests has focused on developed democracies, where there is extensive information on other factors that interact with protest size to influence government concessions. Since our study is cross-national, our data lack this fine-grained detail. We lack information on many aspects of the political opportunity structures facing these protest movements that may be relevant in explaining their ability to gain concessions, for instance, social movements' degree of elite alliances (Soule and Olzak, 2004). We have included several

control variables of theoretical relevance, including the goals, tactics, geographic scope, and actors involved in protests. While the relationships of these control variables to government concessions are less robust across models than protest size, and it is beyond the scope of this research to examine these relationships in depth, we see some indications that broader geographic scope has a positive relationship with the likelihood of concessions, as do tactics of concentration. We have also attempted to account for as many unmeasured contextual factors as possible through the use of country and year fixed effects, which should capture the influence of anything specific to a country or a year, but which are unable to capture more short-term, movement-specific factors that may influence the likelihood of concessions.

Second, both data sources we employ rely on media accounts to generate their underlying events. This comes with significant limitations as to what we can infer about protest *per se*, since an extensive literature has pointed out how media sources only capture particular types of protest (Andrews and Caren, 2010; Earl et al., 2004; McCarthy et al., 1996). Peaceful protests in particular are less likely to be well-covered by major media outlets (Day et al., 2015). We have no reason to believe that these selection bias issues would undermine our findings. For instance, we find it unlikely that selection bias would affect the validity of the Friday instrument. Yet our data sources do imply an important scope condition on our findings: they only apply to protests that are able to gain the notice of media sources. We cannot infer, for instance, that the surprising negative relationship between Friday effect participation and concessions applies to protests too small to capture media attention.

7 Conclusion

What characteristics of protest make it effective in pressuring governments to grant concessions? As the extensive social movements literature we have discussed shows, the answer is complex. Yet amidst this complexity, one of the most intuitive and robust factors impacting concessions is protest participation. Larger protests tend to be more disruptive and impose greater costs upon governments, as well as providing a stronger signal of popular discontent. However, our findings suggest that this relationship is less straightforward. Understanding

it requires accounting for the potential for bandwagoning effects on protests that are already likely to lead to concessions. When this is done, the effect of larger protests may be radically different. In addition, larger protests do not always signal new information about opposition strength, nor are they necessarily more disruptive. When protests occur on days in which large numbers may be easily anticipated, larger protests may even decrease the likelihood of government concessions.

Our results question the link between protest size and government concessions. At least, previous studies that have identified this link may include some endogeneity generated through bandwagoning effects and micro-level processes that provide signals to potential protesters of impending government concessions, but manifest in statistical models as omitted variable bias. We emphasize the importance of new studies that examine the impact of social movements and protest campaigns that account for endogeneity with a wide variety of robust instrumental variables. While early studies have largely remained limited to weather-related instruments, we have shown here other potential exogenous instruments for protest size exist to be leveraged. Employing such strategies will significantly strengthen the robustness of our claims about the "ambiguous" (Tarrow, 2011) effects of social movements on political processes.

While we have presented some evidence suggesting that this reduced effect speaks particularly to the importance of the signalling for participation to lead to concessions, data limitations mean that we cannot definitively distinguish between the two. Thus, future research should focus on identifying ways to more clearly separate the impact of these different paths to concessions, for instance through mediation analysis of the relationship between participation and concessions.

However, our study also raises something of a paradox. If researchers can anticipate variations in protest size then so can regimes. As such, it will be difficult in future studies to estimate the "real" effect of protests that are unanticipated in a cross-national framework. Unpacking this relationship further will likely require delving into specific cases to understand the social context of protest events and the extent to which they were or could

have been anticipated by the regime. Ketchley and Barrie (2020)'s study comparing the impact of protests on Fridays in the Egyptian and Tunisian revolutions is one example of this kind of rich case-specific work done very well. While broad statistical patterns can provide indicative evidence of specific causal mechanisms, the elaboration of those mechanisms typically requires more in-depth qualitative study.

Our study also has important policy-relevant applications for those interested in understanding and forecasting the potential impact of social movements. When large protests are underway, outside observers are likely to assume that political change (or at least government concessions) are imminent. Our findings suggest an important caveat: observers should take into account to what degree large protests rely on easy mobilization strategies that government decision-makers are likely to anticipate and discount.

Finally, for social movement activists, our findings suggest that simply "getting people to the streets" is unlikely to be sufficient in motivating government concessions, even if the numbers involved are significant. Instead, social movements should consider how to tailor their tactics such that the numbers they are able to mobilize are unanticipated and send a strong signal that forces decision-makers to re-evaluate the degree of opposition they are facing.

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